

REMARKS

Amendments

Claim 1 is amended to improve its readability and to further include a limitation that the first vessel is defined by a height to diameter ratio. Support for the height to diameter ratio limitation is found in the specification at page 4, line 34--page 5, line 1.

§102(b) Rejection

The Examiner has rejected claims 1-2, 4 and 9-10 as being anticipated by the Casperson patent (U.S. 4,401,402). This rejection is respectfully traversed and reconsideration of the rejection in view of the following discussed differences is requested.

The Examiner assumes that there are no differences between Applicants' claimed invention and the teachings of the Casperson patent and points specifically to the pump shown in the Casperson patent used for recycling liquid from a lower vessel to an upper vessel. There are, however, a number of differences between Applicants' claimed invention and the Casperson teachings. One such difference is that the second vessel of Applicants' claimed invention is equipped with means for discharging slag from its lower end that may be open or closed. An example of such means is a valve. This means is used to control the discharge of slag from the second vessel. In the inventive process, the means is alternately open when fluid communication between the first and second vessels is closed and then closed when fluid communication between the first and second vessels is open. The Casperson patent does not disclose such an outlet that is operated in the same way.

The conduit between the quench zone and the first vessel of Applicants' invention presents another difference from the teachings of the Casperson patent. In the conduit between the particulate reservoir and the first vessel of the Casperson patent there is provided an auger for transporting particles through the conduit and there is provided valving for isolating the sealable vessel. These types of obstructions are not desired in Applicants' conduit between the quench zone and first vessel. It is a preferred aspect of Applicants' invention for the conduit to have a large opening so as to provide for trouble free flow of the slag particles into the first vessel, or the opening may have a slag grinder to break up large slag particles. See page 8, lines 1-9.

Another difference from the Casperson teachings is that Applicants' invention includes the provision of means to discharge from the first vessel water having a small amount

of slag. See page 6, lines 14-18. The Casperson teachings do not disclose such a removal means associated with its sealable vessel.

Considering the above noted differences, it is respectfully suggested that the Casperson patent fails to anticipate Applicants' invention. Withdrawal of the rejection is, therefore, respectfully requested.

§103 Rejection

The Examiner has rejected claims 3 and 5-8 as being obvious over the Casperson patent (U.S. 4,401,402). This rejection is respectfully traversed in view of the following remarks.

Applicants note the above discussed differences between the teachings of the Casperson reference and claimed invention in addition to those recognized by the Examiner in his obviousness rejection. It is respectfully suggested that the differences are significant enough to render Applicants' claimed invention patentable over the cited references.

Concerning the Examiner's comments regarding claim 3, it is noted that Applicants have stated that one significant benefit from the introduction of the recycle water from the second vessel into the lower end of the first vessel is that it increases the concentration gradient of sulfur compounds between the first vessel and the quench zone. See page 5, lines 1-6. The Casperson patent does not recognize this benefit.

In view of the above, it is respectfully suggested that claims 3 and 5-8 are patentably distinct over the cited reference. Withdrawal of the rejection is, therefore, respectfully requested.

Conclusion

In view of the above discussion, Applicants respectfully suggest that the claims now pending in this application are patentable over the cited art. Early allowance is therefore respectfully requested.

Respectfully submitted,

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